NOTES

Wilhelm Wundt died at Leipzig on the afternoon of Tuesday, August 31, 1920, a fortnight after the celebration of his eighty-eighth birthday. Psychologists of all interests and of all shades of opinion unite to do homage to the memory of the foremost representative of their science. We hope in a later number to print a sketch of Wundt's life and psychological work.

Théodore Flournoy, who held the chair of psychology and history and philosophy of science at the University of Geneva, died on Nov. 5, 1920, at the age of 66. Flournoy published in 1893 a volume on *Des phénomènes de synopsie,* and became widely known by his *Des Indes à la planète Mars: étude sur un cas de somnambulisme avec glossolalie,* 1900 (translated into English in the same year). He published also: *Le génie religieux,* 1904; *La philosophie de William James,* 1911 (translated 1917); *Esprits et mediums,* 1911 (English abridgment, *Spiritism and Psychology*); *Une mystique moderne,* in Arch. de psychol., xv, 1915; *Mètaphysique et psychologie,* 1919 (reprint, with preface by H. Höffding, of the edition of 1890); and many other studies in the *Archives* and elsewhere. He was co-editor with Professor Claparède of the *Archives de psychologie* since the foundation of that journal in 1902.

Alexius von Meinong, professor of philosophy in the University of Graz, died on Nov. 27, 1920, at the age of 67. Meinong is best known by his contributions to the border-discipline which he named *Gegenstandstheorie*; his *Gesammelte Abhandlungen* were published in three volumes in 1913-14. His doctrine of supposals (*Ueber Annahmen,* 1902, 1910) attracted widespread attention. Meinong also wrote on topics of direct interest to experimental psychology (Weber's law, the color-pyramid, etc.), and in 1894 founded at Graz the first Austrian laboratory, from which has come a long and valuable series of experimental studies. He was strongly influenced by Franz Brentano, but with his friend Alois Höfler arrived at conclusions which Brentano vigorously combatted; indeed, we owe to Meinong much of the new matter in Brentano's *Von der Klassifikation der psychischen Phänomene* (1911).

Elmer Ernest Southard, professor of neuropathology in the Harvard Medical School, from 1912 to 1919 director of the psychopathic department of the Boston State Hospital, and in 1919 appointed director of the Massachusetts State Psychiatric Institute, died Feb. 8, 1920, at the age of 44. The Bulletin of the Massachusetts Department of Mental Diseases, iv, no. 1, Feb., 1920, which is issued as a Southard Memorial number, contains a characteristic portrait, an appreciation by Dr. R. C. Cabot, and a bibliography.

SYSTEMATIC PSYCHOLOGY

Professor Stumpf has recently published in the Memoirs of the Prussian Academy of Sciences, and also as separate works, two important monographs in systematic psychology.[1] (1) The first (1917) deals with the attributes of visual sensations. Aside from spatial and temporal characters, which he does not consider, Stumpf recognises three attributes: quality, brightness, and intensity. The change which differentiates the progression of blue-red-yellow from the progression black-grey-white is a change of quality; the change which is common to the two progressions is a change of brightness. The achromatic series thus shows, like the color series, changes both of quality and of brightness. Intensity, the outstanding difficulty of the psychology of visual sensation, receives thorough discussion. Stumpf frankly accepts the attribute, on the analogy of the other senses, and seeks evidence for it. He finds in the grey (which, in popular speech, is a dark grey) of the resting eye—G. E. Müller's middle grey, Révész's critical grey—the weakest visual sensation, and in direct sunlight the strongest. Theoretically, all the visual qualities, including of course the blacks which are darker than the critical grey, lie in a single straight line of intensity between these terminal points. As a matter of fact, the qualities that we see in ordinary diffuse daylight are of approximately constant intensity. If, however, we observe strongly illuminated (especially yellow) surfaces on a dark background we may note definite intensive changes: the yellow, *e. g.*, remains the same yellow, but as the illumination increases becomes yellower, not in the sense of greater saturation, but in the intensive sense of more strongly yellow. These observations, Stumpf argues, are sufficient to establish the attribute of intensity: colateral evidence is found in the experiments upon color limens.—Saturation or chroma then necessarily disappears as a visual attribute. Stumpf declines to recognize insistence, and apparently declines to recognize clearness or vividness, though formally he leaves this issue open.

(2) In the second monograph (1918) Stumpf seeks to determine the difference between sensory and imaginal experience, between *Empfindung* and *Vorstellung*. He begins by discussing, with special reference to tones, the criteria currently applied: presence and absence of external causes, specific diversity of contents, specific diversity of acts, gradual difference of intensity. The evidence points decisively to a mere difference of degree. Stumpf accordingly adopts this position, and from it rebuts a number of objections: that, with a merely intensive difference between sensation and image, we could not talk of an imaginal fortissimo; that metric comparisons of the intensity of sensations and images ought to be possible; that images could not be present simultaneously with sensations of the same sense; and that the facts of the limen would be unintelligible. He then turns from hearing to sight, and considers the intensity of visual images, their spatial properties, the phenomena in the neighborhood of the limen, and the separation of colors and greys in ordinary ideas and in hallucinations.

[1] "Die Attribute der Gesichtsempfindungen," *Abh. d. kgl. preuss. Akad. d. Wiss.*, Jahrgang 1917, phil.-hist. Klasse, no. 8. Einzelausgabe, Berlin, 1917; price (at the time of issue), Mk. 5.25. 88 pp.

"Empfindung und Vorstellung," *Abh.*, etc., Jahrgang 1918, phil.-hist. Klasse, no. 1. Einzelausgabe, Berlin, 1918; price (at time of issue), Mk. 6.75. 116 pp.

The upshot is that all *sinnlich-anschauliche Erscheinungen,* all the 'sensory' and 'imaginal' experiences, of a determinate kind form a single intensive series, ranging continuously from the weakest 'image' to the strongest 'sensation.' From the purely phenomenological point of view there is no reason for a distinction of the two classes. We gradually learn, however, that experiences of a certain range of intensity are usually due to outside causes, and we thus come in course of time to an immediate, unreflective differentiation of perception from idea. Scientifically, the line of division is drawn at the stimulus-limen. But once the dividing line has been drawn, once the scale of intensities has been calibrated, a conscious reference-to-object is unnecessary; henceforth intensities above the limen go by the very fact of their intensive rank to the class of sensations, intensities below the limen to the class of images.

Stumpf proceeds to the enumeration of secondary criteria. *Vorstellungen* are poorer than *Empfindungen* in immanent and concomitant characters; they are fleeting, or at any rate less sharply delimited in duration; they are largely modifiable at will. And, as a result, the affective influence of *Vorstellungen* is on the average less than that of *Empfindungen*; and "if the question of the real significance of the phenomena arises, it is in the case of *Vorstellungen* bound up with the consciousness that the belief in reality needs justification, while in face of *Empfindungen* this belief is, at least for the naive consciousness, immediate."

If all images lie below the intensity of the stimulus-limen, it follows that many experiences which we currently number among images must be renamed sensations; Stumpf devotes a section to subjective sensations and hallucinations. From these he passes to the collateral evidence for the qualitative likeness of sensation and image: associative memory, the fusion of reproduced and perceptive elements in the unitary empirical object, associative reproduction and the recognition of purely imaginal formations, likeness of sensory and motor effects. Finally, he distinguishes between images of memory and images of recollection, but hesitates to recognize a class of images of imagination.—

Whether or not we agree with Stumpf's conclusions, we may be heartily grateful to him for the patient thoroughness with which he has worked them out; and fortunately they may, in most cases, be put to the ultimate test of experiment. The brightness-attribute of visual sensations will, one is disposed to think, find ready acceptance; the intensive attribute will doubtless be disputed, but has at any rate achieved respectability. Saturation may be dispensed with the more easily if one accepts Dimmick's view of grey as not the specific mid-term of a single black-white series and the end-term of chromatic series, but the end-term of six specifically qualitative series. As regards sensation and image, I confess that Stumpf's exaltation of intensity does not so far convince me, and that his account of the observer's behavior in the liminal region does not square with my own experience. I incline rather to a differentiation by 'body,' by collocation of attributes. Here as elsewhere, however, experiment will decide.

E. B. T.

THE AMERICAN PSYCHOLOGICAL ASSOCIATION

The twenty-ninth annual meeting of the American Psychological Association was held at the University of Chicago, December 28, 29, 30, 1920, with approximately one hundred fifty members present. The Sections of Psychology and Education of the American Association for the Advancement of Science met at the same time and in the same building and members of both organizations circulated freely between parallel programs. The fifty-seven papers presented before the American Psychological Association were about equally divided between experimental and general psychology on the one hand and applied psychology and mental tests on the other. After the annual banquet the retiring President, Dr. Franz, gave the presidential address on "Cerebral-Mental Relations," in which he brought together the recent evidence against fixed localization of function in the brain. Messrs. Cattell, Judd, Scott, and Pintner spoke informally in appreciation of Wilhelm Wundt, presenting personal reminiscences of their work with him.

The meetings were marked by considerable discussion of plans of organization in psychology and of the ways and means for meeting the demands which the recent extensions of psychology have placed upon scientific sources of fact and personnel. There was also evidence, as numerous papers attested, of a desire on the part of experimentalists to break down distinctions existing at present between schools of psychology and to emphasize psychological community of thought rather than differences of points of view.

The election of officers resulted as follows: President: Margaret Floy Washburn, Vassar College; Members of the Council, 1921-1923: George F. Arps, Ohio State University; Walter S. Hunter, University of Kansas; Nominees for appointment to the Division of Anthropology and Psychology of the National Research Council: Walter B. Pillsbury, University of Michigan; George M. Stratton, University of California.

E. G. B.

RECOGNITION OF FACES

The prompt and sure identification of persons by recognition of their faces is so obviously a matter of practical importance that it is amazing that it has not earlier become an object of critical and experimental study. Dr. Henning[1] has, however, laid an excellent foundation in analysing the problem and working out a method for a quantitative attack upon it, from which follow in natural sequence a method for the training of those whose business it is to recognise faces, and a new field for testing in vocational guidance. Incidentally he has also supplied psychology with a striking instance of the operation of the "apperceptive mass," and furnished ethnology with a new method of racial classification.

For the details the paper itself must be consulted; but it may be noted that unerring identification of faces is dependent upon the analysis of them, *i. e.*, upon attention to certain primary facial elements (eyes, eye-brows, nose, mouth, etc.) and their variations—

[1] H. Henning, Das Wiedererkennen menschlicher Gesichter in kriminologischer Hinsicht. Mit 14 Abbildungen. *Arch. f. Kriminologie, 72,* August, 1920, pp. 235-254.

inexpert looking at faces is always satisfied with unanalysed total effects—and that the method consists in finding the minimal facial area, determined on a photograph or a real face by means of an Aubert diaphragm or something similar, which permits certain recognition.

The illustrations show the bilateral asymmetry characteristic of most faces and the difficulty of recognising even well-known faces when seen in part only. It is regrettable that the pictures illustrating bilateral asymmetry complicate the matter by introducing a gross and unnecessary difference in the arrangement of the hair.

E. C. S.

A FURTHER WORD ON SUPERSTITIOUSNESS

Since publishing my study of the superstitions of college students (this JOURNAL, 30, 1919, 83), I have discovered a somewhat similar study made over thirty years before and published under the rather misleading title of "First Report of the Committee on Experimental Psychology" (*Proc. of American Society for Psychical Research*, 1, No. 3, 1887). The report is signed by the committee's chairman, Professor C. S. Minot. A form of questionary was used, and the study was designed to "test the prevalence of a tendency to superstition in the community." The three questions in the list upon which the conclusions of the report were based sought the frequency of tendency to superstitiousness concerning the number thirteen, Friday, and seeing the new moon over the left shoulder. Why these three and only these were selected is not made clear. Five hundred returns were tabulated, but no definite statement appears in the report concerning the class of people from whom the returns came, except a vague statement in the concluding paragraph about "the educated portion of our community" and a reference to New England.

This report concludes that 10% of men and 20% of women have a tendency to superstition, and the committee expressed surprise at the large number. My own results indicate a much larger percentage of both men and women (men admitting present belief or practice 40%, and women 66%). Can it be that there has been such an astonishing increase in superstitiousness in thirty years? Probably not. The small figures which the committee obtained are more likely due to the curious limitation of their study to three superstitions. It is true that the committee's returns were from adults chiefly, while mine were entirely from adolescents; but an analysis of their tables indicates that the returns which they included from those of adolescent years present the same small percentages.

Isolation of the committee's returns from adolescents, for comparison with my own returns, indicates that the committee found about 11% of young men with a superstitious tendency and about 17% of young women. My results for the same age-group were 40% and 66%, approximately the same ratio. That two studies made thirty years apart, in localities three thousand miles apart, and by somewhat different methods, should indicate the same degree of difference between the sexes adds much to the reliability of the conclusion.

Neither Dresslar's work nor mine, however, supports the conclusion of the Minot committee that there is a greater tendency to be superstitious about the new moon than about either Friday or the

number thirteen. As our combined work covers so many more cases, it must certainly be that the Minot committee were led astray by a chance result.

University of Oregon. EDMUND S. CONKLIN.

COMBINATIONAL TONES REGISTERED BY THE TONOSCOPE .

In a recent number of this JOURNAL[1] the writer reports the effectiveness of the tonoscope for registering difference-tones of the first order. Later experiments justify further conclusions.

In this study difference-tones of higher orders were investigated. For this purpose the generators employed were the bugle and the voice. Two points were essential in selecting the range of the generating notes: that their difference-tones should lie within the limits of the tonoscope-readings, or at least not beyond a very small multiple of the readings, and that the various difference-tones should be far enough away from one another and from their generating notes to prevent overlapping and blurring of the dots on the tonoscope. When these precautions were observed, records of difference-tones of the second and third orders were as easily and clearly obtained as those of the first order had been in the earlier experiments.

BUGLE TONE		SINGING TONE		
Approximate note	Tonoscope Readings in vibs.	Approximate note	Tonoscope Readings in vibs.	Tonoscope Readings for Difference Tones in vibs.
a#[1]	120 × 4=480	f#[1]	123 × 3=369	D_1 111 × 1=111
	160 × 3=480		184 × 2=368	D_2 129 × 2=258
				D_3 147 × 1=147

Records for summation-tones obtained from these generators were then attempted without success.

Many theories have been advanced regarding the nature and origin of summation-tones. W. Preyer,[2] following a suggestion made by G. Appunn, explains them as differential tones derived from the action of partials rather than from the generating tones themselves. He declares that all cases of summational tones on record might conceivably fit into this theory. This view suggested a means of approach through the tonoscope. If, for example, the summation-tone of 500 vibs. arising from two notes with vibration-rates of 300 and 200 respectively may be regarded, not as the sum of the two generators, but as the difference between the first generator's second partial of 600 vibs. and the first difference-tone of 100 vibs., then generators possessing a strong second partial ought to register this 'summation' tone as easily as difference-tones, and generators lacking the second partial in any strength ought to fail to register this tone although difference-tones be clearly recorded.

To check this supposition trombones were selected because of their strong second partials, and clarinets because this partial is an almost

[1] E. Gough and G. Robison, The Tonoscope as a Means for Registering Combination Tones, *Amer. J. Psychol.*, 31, 1920, 91ff.

[2] H. Helmholtz, Sensations of Tone; Additions by the Translator, A. J. Ellis, 1895, 532.

negligible component of the tone.[3] Difference-tones of the first two orders were attempted with good results from both instruments.[4] The two trombones gave a clear reading of a summation-tone from the following generating notes: f, 176 vibs. and A, 117 vibs. The tonoscope recorded 147×2, or 294 vibs.[5] The clarinets were uniformly unsuccessful in producing readings for summation-tones, although conditions were well adapted for recording them if present.

More delicate and more extensive work needs to be done to investigate this theory further. These experiments tend to support the conception that summation-tones are to be regarded more accurately as difference-tones dependent on the presence of a strong second partial tone.

Smith College. EVELYN GOUGH.

APPOINTMENTS

Dr. Samuel W. Fernberger, recently Assistant Professor of Experimental Psychology at Clark University, has been appointed Assistant Professor of Psychology at the University of Pennsylvania. Mr. C. C. Pratt has been appointed instructor in experimental psychology at Clark University.

Dr. F. L. Wells has left the McLean Hospital, Waverley, Mass., to become head of the Psychological Department at the Psychopathic Hospital, Boston, Mass.

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[3] The writer was exceedingly indebted to the generosity and the patience of Northampton musicians in carrying on this section of the work. Mr. Carl Dodds and Dr. C. E. Perry played the trombones and Miss Myrna Wilderson and Mr. Carl Brand the clarinets.

[4] The clarinet gave good readings only for tones produced by closing most of the keys. Otherwise the air escaped through these openings instead of being directed into the tonoscope. The trombone proved an excellent instrument for this use.

[5] The second partial itself could never be read obviously from the tonoscope.